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## PERSONAL OBSERVATIONS OF LISTER'S ANTISEPTIC TREATMENT.

BY ROBERT WHITE, JR., M. D.

THAT the system of treating wounds devised by Joseph Lister, of Edinburgh, is actively engaging the attention of surgeons throughout the world is evidenced by the frequent references to it in medical articles, and by the attempts made to carry it out in numerous hospitals in this country and in Europe. The constant presence at the Edinburgh Infirmary of representative surgeons from all parts of the world, especially from Germany, where Lister's system has been very extensively adopted, points to his wards as the present centre of surgical interest in Europe.

Most extraordinary results have followed this treatment in the hands of those who have faithfully carried out Lister's ideas and who have worked in accordance with the rules on which the method is founded; it is evident that these are but imperfectly understood, many who have written on the subject, or who have attempted to carry on the treatment, betraying such a vague understanding of the true principles governing it that it is not difficult to account for the variety of results arrived at by different surgeons.

A residence of several months in Edinburgh, after my inspection of the attempts made to carry out the antiseptic treatment in the hospitals of England and the Continent, gave me the advantages of Mr. Lister's personal instruction in his methods, and the observation of his experiments and cases under circumstances more favorable for forming a correct opinion in the premises than are possessed by visitors who make a few hasty visits through the wards and come away with but very crude ideas of either the principles or the results of the treatment.

Without a proper comprehension and *acceptance* of the principles on which the antiseptic treatment is founded, any attempts to carry it out will almost certainly be attended with failure; let us, therefore, briefly review these. Pasteur, Tyndall, Lister, and others have proved by extended series of experiments that atmospheric air, in even the most healthy and favorable localities, contains great numbers of minute germs or organisms in a state of great activity, and capable of proliferation with astonishing rapidity. As seen under high powers of the micro-

scope (400) their general form is that of a minute globule, or a chain of two or more of these, many of the single globules not being more than  $\frac{1}{1000}$  of an inch in diameter; they are known by the general names of bacteria and vibriones. Numerous other organisms exist in the air, as the penicillum glaucum, the torula cerevisiæ, or yeast plant, and other germs, the introduction of which into liquids produces the various forms of fermentation; but the bacterial species spoken of above has special interest for us as being the recognized source of putrefaction, either directly or by some noxious substance generated by it. This is easily demonstrated by a few simple experiments. Examine microscopically a drop of milk that has been exposed to the air at a moderate temperature for forty-eight hours. Circulating rapidly among the oil-globules, and exceeding them greatly in number, will be seen the bacteria referred to above. If they should not be present in great numbers in the first specimen examined, their rapid proliferation in the course of a few hours will be astonishing to the new observer; the same thing may be seen in urine, meat juice, vegetable infusions, or other readily putrescible fluids. For comparison take any of the same fluids in a fresh condition, boil for some time to destroy any germs that may already have entered the fluid, examine with the microscope, and no bacteria will be found; leave the same liquid exposed to the air for twenty-four hours or more, and it will be found to be swarming with organisms that entered it from the air, or the same result will be produced in it in a few hours by the introduction of a minute drop of the fluid in which putrefaction has already occurred. If the boiled liquid be sealed, or the air having access to it, be charged with an agent capable of destroying the germs, on examination weeks or months afterwards it will be found free from organisms, but after twenty-four hours' exposure will teem with them.

In the vast majority of abscesses in which there has been no communication with the air, no organisms are found, while in abscesses or wounds that have been exposed to the air for a few days they are generally found in greater or less quantity, and wounds that have assumed a putrid character fairly teem with them. An extended series of experiments have also shown that these germs may be destroyed and the air containing them rendered innocuous by the action of certain chemical substances (antiseptics), by continued heat, or that it may be quite freed from them by filtration. If a flask which contains milk, blood, urine, or any readily putrescible fluid, be boiled and the mouth of the flask well plugged with a bunch of carbolized wool before removing from the flame, the air which naturally regurgitates into the vessel on cooling must pass through the wool, where the germs are destroyed by the antiseptic, and no elements of putrefaction are introduced. In Mr. Lister's hands I have seen flasks of urine, milk, and blood which had pre-

served all the characteristics of perfectly sweet and fresh fluids for periods varying from one to two years. On being opened they were found quite free from organisms, but twenty-four hours after exposure they swarmed with bacteria, and presented all the other evidences of putrefaction. Experiments of this character may be varied to a great extent, all tending to show, however, the source of putrefaction and the means of preventing it; those above cited have special bearings on antiseptic surgery.

The latest researches made with reference to the ætiology of septicæmia and pyæmia go far towards proving that these diseases are produced by the absorption into the circulation of the putrefactive secretions of wounds. Pyæmia but rarely occurs when the skin is unbroken, and the absorption or even the injection of healthy pus into the circulation is often unattended by any bad effects, or when followed by symptoms they are much less marked than when putrid pus is injected, this causing all the symptoms of pyæmia. It may be asked, admitting this, Is it proved that the putrid pus on the surface of the wound can enter the circulation? It has been experimentally proved that pus corpuscles can reënter the veins through their coats, and the appearance of bacteria on the stumps of amputated limbs is soon followed by their appearance in the blood, in cases of marked infection, in such quantity that they outnumber the red corpuscles in the proportion of two or three to one. We know also the facility with which the white corpuscles penetrate the tissues and the walls of the blood-vessels. Moreover, it is not necessary that the pus corpuscles should actually get into the blood current, the absorption of the noxious products of putrefaction, whatever they may be, being sufficient to produce the dreaded effects. The epidemics of pyæmia, of hospital gangrene, and of erysipelas that occasionally prevail in certain localities are doubtless frequently caused by the air in the vicinity of patients suffering from putrid wounds becoming loaded with the noxious products of putrefaction, and the consequent infection of other patients through their wounds, to which the contagion is introduced by the germ-laden air. It is by the destruction of these germs and the purification of the air that comes in contact with the wounded surfaces, thus removing the causes of putrefaction, that Lister aims at the prevention of pyæmia, as well as the prevention of suppuration and the necrosis of tissues, and at the promotion of rapid healing.

This result is not to be gained by the occlusion of air from the wound, or by simply applying an antiseptic to it. Lister does not attempt the impracticable feat of excluding the air from the wound, but purifies it, and the simple application of an antiseptic to the wound falls far short of the results secured by proper antiseptic treatment. In the first place it is extremely difficult to have the antiseptic penetrate those

parts of deep wounds where putrefaction would most readily occur; secondly, and most important, any agent sufficiently active to insure the destruction of the germs, if applied directly to the wound, will act as an irritant, induce suppuration, and thus interfere with the rapid healing process which it is the aim of proper antiseptic treatment to promote, and during the progress of which the agent does not come in contact with the wound. That the action of a chemical irritant on the surface of a wound will greatly delay its healing is undisputed, and almost as certain is it that the decomposition of the albuminous secretions of a wound is attended with the generation of noxious substances which exercise an influence similar to that of the chemical irritant, with the same consequences of inflammation, suppuration, and slow healing. Under the antiseptic treatment this decomposition is prevented, the local process of repair goes on unchecked by the presence of irritating secretions, and rapid healing ensues. That the tendency of wounds is to heal, and that the time employed in healing is very much shortened, will be apparent to any one who makes more than a transient visit to Lister's wards.

It has happened to some who tried Lister's method that they have failed to obtain the results its advocates have claimed for it, either in the prevention of putrefaction or in the securing of rapid healing. Without doubt, in the majority of such cases the failure is due to ignorance of the principles governing the antiseptic treatment and the omission of some of the details necessary for its success.

Let us follow Mr. Lister through the steps of an operation and dressing, for it is only by the close observation and imitation of his treatment in all its minutiae that we can hope to secure the same results that are attained at his hands.

In addition to the ordinary requirements for an operation there are needed a plentiful supply of carbolic lotion (1 to 20 and 1 to 40), carbolic oil (1 to 10) for instruments, the "protective," the prepared dressing of carbolized gauze and waterproof or "mackintosh" cloth, and a large spray producer containing 1 to 40 carbolic solution. The skin in the vicinity of the part to be operated on is purified by washing with the 1 to 20 solution, the hands of the surgeon and of all the assistants who touch the wound, and all instruments or other objects that touch the wound are dipped in the same solution, the spray is thrown on the part, and the operation is commenced. The sponges lie in a basin of the 1 to 40 solution, and are rinsed in the same. The object of the spray is the purification of the air passing into the wound, which must be kept covered with it during the whole time of operation. If for any reason it becomes desirable to suspend the spray during an operation or dressing, the wound may be effectively protected for a considerable time by a "guard," a piece of cloth large enough to cover the



wound, being wet with the carbolic lotion and laid over it. If saw or gouge is used, it should be coated with the carbolic acid. Vessels too large to be secured by torsion should be tied with catgut ligatures. Into all wounds deep enough to admit one a carbolized drainage tube should be introduced, to facilitate the escape of the secretions. Where sutures are needed, those of carbolized catgut or wire should be used; the parts about the wound being well cleansed with carbolic lotion, the protective is cut large enough to extend a little beyond the edges of the wound and adapted. Much confusion of opinion exists as to the object of the protective. It is not a protection against putrefaction, but against the irritative action on the edges of the wound of the carbolic acid in the gauze dressing which is placed over it. The dressing is usually applied in folds of eight thicknesses, and between the two outer folds is placed a piece of mackintosh cloth with its waterproof side toward the wound; the object of this is to arrest any discharge that may penetrate through the layers of gauze between the mackintosh and the wound, and which but for its interposition would pass through the last layer of the gauze, and, having exhausted the antiseptic in it, would soon putrefy; when arranged in the manner described, the discharge is compelled to traverse the extent of the mackintosh between the central point, where it first impinges on it, and its edge, where the discharge can first come in contact with the elements of putrefaction. Before it reaches that point the dressing should of course be changed; the frequency with which this should be done is determined by the amount of discharge. Immediately after operations, or when a profuse discharge exists from any cause, it should be changed every twenty-four hours, and the intervals should be gradually extended to two, four, six, or even eight days as the discharge diminishes. The gauze dressing with its mackintosh should always extend several inches around the wound; in amputations it should envelop the stump, be folded over it, and secured with bandages of the same carbolized material.

It may be asked, Why the carbolized gauze particularly? Why is not a dressing well saturated with carbolized oil or carbolized glycerine equally effective? In a slight case, with little or no discharge and with frequent dressings, this might answer; but if the discharge be at all considerable, the volatile antiseptic is soon absorbed or dissipated, and the discharge putrefies; the resin with which the gauze is prepared holds the carbolic acid for a long time and gives it off slowly; but without the mackintosh to prevent the discharge penetrating directly through the dressing, the gauze would be little better than any other carbolized dressing.

At each changing of the dressings the spray should be directed on the edge of the gauze as soon as it is exposed by the cutting of the bandages, and on the wound as the gauze is raised from it; the protective is

removed, the wound washed in carbolic solution 1 to 40, drainage tubes, if there are any, taken out and washed in the same solution, replaced, new protective applied, and then a fresh gauze dressing. In all cases in which the gauze dressing has been made up for a long time beforehand, it is a wise precaution to place over the protective a fold or two of gauze wet in the carbolic lotion, for the dry gauze gives off the carbolic acid too slowly to destroy immediately any germs that may have fallen on it; the wetting of the inner layer of the gauze with the spray or lotion answers the same purpose.

At first glance Lister's system, with its necessary spray, gauze, mackintosh, and protective, may appear troublesome and expensive, but to one who continues to observe a large number of cases for a length of time it soon becomes evident that with the exception of the spray, which requires the aid of another assistant, for which duty the nurse or frequently even the patient will answer, there is but little more time or trouble required than for water dressings. As shown by the reports of the cases, the interval between the dressings is much longer, so that taking the whole duration of a case there is actually a saving of time, and the same rule will apply to the cost of the dressings.

The same piece of mackintosh may be used for many dressings if sponged over with carbolic lotion before being reapplied. It is well to provide two pieces for each case, so that the dressings may be prepared beforehand; it should not be forgotten that its action is not antiseptic in itself, but simply mechanical. The dressing should always be changed on the day following the operation, as the irritant action of the carbolic spray and lotion on the wound during the operation is followed by a free serous exudation, so that twenty-four hours after an operation performed under the antiseptic method the sanious discharge on the dressings will be much greater than under the ordinary method; but after the first day this rapidly diminishes, so that at the end of a week in favorable cases the dressings are hardly stained, and a stump or other extensive wound may heal without the formation of a single drop of pus. A few cases to illustrate these points will serve as well as a large number.

W. N. Adult. Amputation of fore-arm for caries of wrist. Patient phthisical and a bad subject generally, but he began to improve after the operation on February 11th. The dressings were changed February 12th, 15th, and 22d, and removed February 29th; the wound was really healed February 22d.

J. B. Adult man. Received severe injury necessitating Syme's amputation February 9th. Dressings changed February 10th, 12th, 15th, 20th, 27th, and March 6th, and 15th.

These wounds healed without the formation of a drop of pus or disturbance of any kind; they are not selected cases, but with another

similar one comprised all the capital amputations in Lister's wards at the time referred to.

The treatment of abscesses by the antiseptic method gives very satisfactory results. Mr. Lister and others believe that the suppuration in an abscess before it is opened is maintained by the stimulation of the pyogenic membrane by the pent-up pus, of which a good evidence is the force with which the pus escapes when the abscess is opened, and afterwards by the admission of septic germs into the cavity, causing putrefaction of the remaining pus and stimulation of the pyogenic membrane to increased secretion, which is continued for a long time under the ordinary treatment by poultices, water dressings, etc. In large abscesses this constant formation of pus gives rise to serious constitutional symptoms, which are avoided if the abscess be opened antiseptically, and if all the pus be pressed out at the time of incision, none will be found at the next dressing; as a matter of fact, however, a few drops of pus that have remained in the abscess will be found on the next dressings, which will be succeeded by a thin serous discharge that steadily diminishes, the abscess healing fast. It is not only in so-called cold abscesses that this favorable progress is witnessed; it is still more strikingly seen in abscesses connected with bone caries. Late researches tend to establish the theory that caries is the result rather than the cause of suppuration, and that if the accumulated pus be removed, without the supervention of the irritant action set up by putrefaction, the diseased bone is placed under the most favorable conditions possible for repair. The rapidity with which large psoas and spinal abscesses will heal when treated antiseptically could hardly be realized by any one who has not seen such cases.

The severe constitutional symptoms that attend putrefactive suppuration of the joints are almost wholly avoided by this treatment. It was very instructive to witness the difference in progress between two cases of acute abscess of the hip-joint in women with histories as much alike in all respects as two cases could be up to the time of their admission to the hospital, just previous to which the abscess of one had been opened without antiseptic precautions, the other antiseptically. In the former case there was free suppuration with putrefaction, caries, necrosis, and great constitutional disturbance. Excision of the head of the femur became necessary, and slow and imperfect recovery followed, with ankylosis, shortening, and a very imperfect limb. In the case treated antiseptically little or no pus was formed after the first evacuation, there was but slight inflammation, and no constitutional disturbance; the wound gradually filled with healthy granulations, and the patient was discharged with a freely movable joint.

When abscesses or bursæ connected with joints are opened and treated antiseptically, their rapid progress towards cure is very gratify-

ing, and the same favorable conditions attend the antiseptic treatment of chronic diseases of the joints. In gelatinous degeneration of the knee-joint and kindred affections, Mr. Lister does not hesitate to make free incisions into the joints, and the contained pus being evacuated no more is formed. It is a very striking thing to see joints into which extensive incisions have been made, and in which the space usually occupied by sloughing, putrid material is filled with a clean, healthy growth. I had an opportunity of seeing three such cases at one time in Mr. Lister's wards, and the absence of constitutional symptoms and the clean appearance of the wounds were very marked. A special point in the treatment of abscesses and affections in which cavities exist is that they are not to be syringed out except for special reasons, for the violent introduction of the irritant antiseptic into the cavity acts as an abnormal stimulant, and is wholly unnecessary, as the spray and dressings over the abscess purify the air that passes through them to its interior. The free evacuation of the pus from the abscess at once is a great improvement on the trocar, and in most cases on the aspirator, for the latter frequently does not prevent putrefaction with all its attendant evils, because if the smallest quantity of pus remains in the cavity it is very apt to decompose.

The dangers of all operations involving the joints seem to disappear in a great measure before the antiseptic treatment, and thus possibilities of conservative surgery are opened up to the surgeon that would other, wise be denied to him. A case in illustration of this was that of a man who lost the use of his arm from the impaired motion of the elbow, apparently from the growth of an exostosis into the joint; the latter was freely opened, and some two hundred pieces of loose cartilage were removed from between the bones forming the articulation; the dressing was changed daily for the first three days, on account of the free sanious discharge, and then at intervals of three, four, five, and six days. The patient was discharged at the end of three weeks, with the wound healed and perfect motion in the joint. The same favorable results attend the treatment of compound fractures, even where joints are implicated, as well as all operations on bones, Mr. Lister having had some very striking and happy results in both classes of cases. In nearly all cases of compound fracture from accident, and indeed in nearly all accidental wounds, there is ample opportunity between the time of infliction of the injury and the time of the patient's coming into the hands of the surgeon for the introduction of septic elements into the wound, and these, if not destroyed, will render all subsequent antiseptic treatment futile. Such cases are treated by syringing the cavity of the wound and thoroughly washing its surface with 1 to 40 carbolic solution. In deep, irregular, and sinuous wounds the syringing is best done by introducing a catheter into the recesses and sinuses, forcing the solution through it, and afterwards dressing under the spray as usual.

The inquiry may arise here, Why not dress all cases in the same way after an operation is concluded? Why will not the thorough washing of the wound with carbolic solution just before the application of the dressings be effectual, thus dispensing with the inconvenience of the spray? For two very good reasons: first, because such washing and syringing is not always effectual in preventing putrefaction, since, however thoroughly it may be done, cases may occur in which the deepest recesses of the wound into which the septic elements would readily find their way may not be reached by the antiseptic, and because during the time that elapsed between the infliction of the injury and the application of the antiseptic the elements of putrefaction may be taken up by the absorbents or otherwise introduced into the tissues beyond the reach of the agent, so that occasionally cases so treated do become putrid; secondly, because the violent syringing and washing with a strong solution introduces the element of irritation to a much greater degree than when the spray is used, and the avoidance of irritation is an essential point in the healing of wounds.

Expecting the antiseptic treatment to do too much is a source of disappointment to those who have not properly studied its principles: for example, using it in cases where the wound is already putrid, as in chronic abscesses, diseases of the joints with putrid sinuses communicating with the air, etc. So long as such cases remain septic they cannot derive any benefit from the antiseptic treatment, which *prevents* putrefaction in *aseptic* or non-putrefying wounds, but cannot change a putrid wound into an aseptic one, any more than a flask of milk, meat juice, or urine that had putrefied would be restored to the same condition as when fresh by the addition of an antiseptic atmosphere; but in the case of both the wound and the contents of the flask the protection of the same atmosphere from the first would have prevented putrefaction. On account of the vital processes going on in a wound, a septic wound may, however, occasionally be changed to an aseptic one by freely applying a solution of chloride of zinc (forty grains to one ounce) by syringe and catheter to the sinuses and deep recesses of the wound, as well as to the more superficial parts; this destroys the putrescent elements in the wound, they are thrown off, and it may thenceforward be treated antiseptically. Even when the chloride of zinc fails to render the wound aseptic, it is of great value in preventing suppuration and absorption of putrefactive products for some days, or until granulation becomes established; this is in accordance with a generally recognized surgical principle, that a healthy granulating surface presents the best known obstacle to the absorption of the noxious products of a putrefying wound; thus in extensive operations, especially about the joints, the use of the chloride of zinc saves much constitutional trouble at a critical time.

The use of the catgut ligature is an essential feature of the antiseptic treatment. Of the advantages of a ligature that can be cut short in the wound without exciting suppuration it is hardly necessary to speak. In the ordinary process of tying an artery the inner and middle coats are ruptured to a greater or less extent, and the remaining substance of the artery is so pinched up that much of it becomes practically dead tissue, which after a time breaks down into pus and allows the ligature to come away. If the artery in the vicinity of the ligature is plugged with a firm coagulum before this occurs there is no hæmorrhage; but if from any cause, as, for example, the starting of a large branch from near the point of tying, so that the constant current prevents coagulation, or the existence of degeneration in the wall of the vessel, the formation and attachment of a healthy thrombus is prevented, hæmorrhage will occur, and this is what happens too often with the silk ligature; the elements of putrefaction are carried in the interstices of its fibres to the dead tissue of the constricted artery, which is contaminated by them, putrefaction and suppuration are set up and maintained by the irritation of the septic ligature, and the vessel in its vicinity becomes an imperfect structure incapable of withstanding the cardiac impulse; besides this the existence of an external wound during the time necessary for the separation of the ligature delays the cure, and is an element of danger to the patient in exposing him to erysipelas, hospital gangrene, and pyæmia.

Even if the silk be carbolized and cut short in the wound, and the possibility of the introduction of septic germs be prevented by the antiseptic treatment, yet the remains of the silk, which are but imperfectly absorbed, may excite suppuration and all its attendant evils. The use of the catgut ligature has been sufficiently extensive to justify the most favorable opinions of it, and also to teach us its *modus operandi*. If any artery that has been tied with catgut under the antiseptic treatment be dissected out with the neighboring parts a month after the operation, it will be found that the ligature has become almost an integral part of the tissues, having become infiltrated with fibro-plastic elements organized and incorporated with the *adventitia* of the vessel, so that instead of acting as an irritant foreign body and an element of weakness it is a source of support to the weakened vessel by surrounding it with a band of living tissue, the change occurring here being similar to what takes place frequently in wounds treated under the antiseptic system, where the original blood clot formed in the wound, instead of breaking down into pus as usual, is actually transformed into organized vascular tissue, furnishing strong evidence of the superior reparative powers displayed by wounds treated in this way.

The advantages claimed for the antiseptic treatment of wounds by Lister's system may be briefly reviewed as follows:—



(1.) The individual wounds so treated are placed in the most favorable condition possible for rapid healing by the exclusion of the elements of putrefaction, with the consequent irritation and suppuration; and the chances of the infection of the patient with erysipelas, hospital gangrene, pyæmia, and septicæmia from his wound are infinitely lessened.

(2.) Its influence in preventing the occurrence of the above-named hospital diseases where patients are congregated together, as in a ward, by checking the development of the *contagium* of these diseases in wounds which would surely be putrefactive under other treatment, and the infection by it of other wounds in the vicinity.

It must be borne in mind that the simple application of an antiseptic to the wound does not secure this result. On the contrary it may act injuriously by delaying the healing, but a treatment is required which will prevent putrefaction without the contact of an irritant agent to the injured tissues; and there is little doubt that those who use Lister's system understandingly, and with a proper attention to necessary but not difficult details, will find that the results will exceed their anticipations.

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#### OVARIOTOMY.

BY DAVID W. CHEEVER, M. D.

CASE XIII. Mrs. —, fifty-one years of age, and the mother of four children, was of spare habit and nervous temperament. She had long been a sufferer from dyspepsia and from hæmorrhoids, with frequent losses of blood. For four years she had been conscious of some abdominal trouble. In June, 1876, when I saw her, she was quite oppressed by a swelling which was oval, smooth, and fluctuating, and filled the abdomen. The swelling was evidently cystic, and could be moved from side to side. The uterus was natural, and free from adhesions. The breathing and digestion were seriously interfered with, the facial veins distended, locomotion quickly exhausting her. The diagnosis of a unilocular ovarian cyst, non-adherent, was made, and an operation to remove it was advised. For three months previous the patient had been taking a saturated solution of chlorate of potash, under a physician's care. The tumor had not been reduced. The patient was so feeble and the weather so warm that a preliminary tapping was recommended, as in Case XII., last reported.

It was hoped that this might afford her a respite through the summer, and give her time and digestive power to regain strength. She was accordingly tapped, and sixteen pints of ropy fluid were withdrawn. The tumor wholly disappeared. She was prevented from getting out of bed for a week. Soon afterwards she went to the sea-side, and was especially cautioned against riding, jolting, traveling, or using in any

way the abdominal muscles, for fear that adhesions might form between the refilling cyst and the abdominal walls. The hæmorrhoids were relieved by the tapping; appetite and digestion returned, and she passed a quiet and comfortable summer.

I saw her again in October and November, and the cyst was slowly filling. While it was still partially full, and before distention had begun to oppress the rectum and stomach, I urged an immediate operation.

This was agreed to, and done December 2d, six months after the tapping. The usual minutiae as to the bed, room, open fire, and hygienic care were observed, and the patient was given a laxative the day previous. No food was allowed on the morning of the operation. Drs. G. L. Underwood, F. W. Draper, and E. M. Buckingham assisted me. Wells's rubber sheet and trocar were used. The cyst was single, and there were no adhesions. It contained thirteen pints of fluid. The pedicle was brought outside, and secured with Wells's clamp. No means of drainage were employed.

From the first incision through the skin until the tumor had been cut away from the clamp and removed, only seven minutes were consumed. There being no leakage into the abdominal cavity, the peritonæum was quickly closed with five deep sutures.

No apparent shock followed the operation. The pulse remained of moderate frequency afterward, and there was but little increase of temperature.

Thirty-six hours after the operation vomiting of a grumous and bilious character came on. This persisted for twenty-four hours, when it subsided. The patient had had similar turns, which she called dyspeptic, in previous years. During two weeks she suffered much from colic, but never had great swelling of the abdomen or tenderness. The bowels were constipated, and were finally moved with a good deal of suffering and by mechanical aid.

The clamp came away on the seventeenth day. The patient was out of bed in four weeks. She is now perfectly well and quite active. The wound is wholly closed. She is obliged to wear an abdominal supporter.

The hæmorrhoids give but little trouble. The successful treatment by a preliminary tapping in this and the preceding case (XII.) seems deserving of a few remarks. In both these cases it is probable that had the patients been operated on to remove the cysts when first seen the result might have been fatal. Mr. Wells has advised waiting until the system is reduced and the woman an invalid before operating. There is such a thing as waiting too long.

While others assert that there is some climatic influence which affects patients with ovariectomy more favorably in England than here, we are disposed to regard the chief difference as dependent on the feebler

organic life and weaker digestive and nutritive powers of the American women. Vomiting, non-assimilation, and diarrhoea carry off many cases of ovariectomy here. The American is dyspeptic, poorly nourished, and anæmic, and needs a stronger digestive system. Under these circumstances she is apt to sink from the shock of an operation unless prepared for it beforehand. That preparation is feeding and assimilating. It cannot be done while a large tumor is pressing on the chylipoietic viscera. It can be done only by taking off the pressure, and giving the patient time.

The season of the year, too, is more important here than abroad. The exhausting heats of our summers are fatal to feeble patients after operation. Autumn and winter are the best times to operate; and were it not that we are obliged to set a day in advance for such operations, — to prepare the details and to quiet the patient's mind, — we believe that something would be gained by always operating when the barometer is rising or high.

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#### CASES OF OVARIOTOMY.

BY JOHN HOMANS, M. D.

CASE VI. *Multilocular Cyst of the Left Ovary; Antiseptic Ovariectomy; Recovery.* — Mary B., aged sixteen, was admitted to the Carney Hospital February 17, 1877. The tumor had been discovered in the latter part of November, 1876, less than three months before her entrance; its growth had been very rapid. The girth at the umbilical level was thirty-eight inches. Her general health was excellent. The catamenia had appeared for the first and only time in August, 1875.

Ovariectomy was performed on February 27th, beneath carbolic spray, one part of the acid to sixty of water. The incision was about four inches long; two vascular adhesions to the mesentery were tied with carbolized silk and divided; many cysts were broken up within the parent cyst; the pedicle was tied in halves with carbolized catgut and dropped back into the pelvic cavity; the abdominal wound was closed by sutures of carbolized silk, and the wound dressed with Lister's gauze. Recovery was uninterrupted. The temperature and pulse rose above 100 but once; in the course of a week the patient took in all five sixths of a grain of morphia. On the sixth day the stitches were removed, there having been no suppuration. Nothing but ice was allowed till the beginning of the fourth day; then barley-water and beef tea in small quantities were given, and on the sixth day beefsteak. On the eighth day urine was passed naturally, and the patient seemed perfectly recovered; on the thirteenth day she was allowed to get out of bed, and on the seventeenth was no longer considered under treatment. From first to last there was no tympanites nor tenderness of the abdomen. She is now, August 24, 1877, stout and strong.

## RECENT PROGRESS IN THE PATHOLOGY AND TREATMENT OF NERVOUS DISEASES.

BY JAMES J. PUTNAM, M. D.

*Post-Hemiplegic and Allied Forms of Mobile Spasm (Athetosis).*—The literature of this subject has been enriched during the year by several interesting papers which agree in maintaining that the affection to which the name of athetosis was given by Dr. Hammond has so many features in common with other spasmodic affections that, from the physiological stand-point at least, they must be studied in conjunction with each other.

The clearest analysis of these common features is given in an article by Dr. W. R. Gowers,<sup>1</sup> his conclusions being summed up in a comprehensive form in the following table:—

POST-HEMIPLEGIC DISORDERS OF MOVEMENT.<sup>2</sup>

Quick, elonic spasm, of intermitting type	Regular (continuous or on movement)	<div> <div>Tremor</div> <div> <div>Fine</div> <div>Coarse</div> </div> </div> Certain, regular movements due to interossei, pronators, etc.
	Irregular (continuous, or on movement)	<div> <div>Choreoid</div> <div>Continuous spasm, or incoördination of movement.</div> </div> Jerking
Slow, mobile spasm, of remitting type	Continuous = "Athetosis."	
	On movement = Slow, cramp-like incoördination	
Tonic spasm, varying	<div> <div>Of interossei, conspicuous</div> <div>Of flexor longus digitorum, conspicuous = late rigidity.</div> </div>	"Spastic contracture" of hemiplegic children.
Fixed rigidity, unvarying		

The following are the clinical facts which seem to call for especial attention:—

(1.) All these forms of spasm occur almost invariably in cases where voluntary power over the affected muscles is present to a greater or less degree, for example, generally during the recovery from hemiplegia; but Bernhardt is said by Dr. Gowers to have reported a case where these movements took place in a limb over which the will had absolutely no control.

Sometimes, indeed, the strength of the affected muscles is as great or greater than normal, and they themselves are hypertrophied. This fact cannot, however, be taken as a sign that the centres in which the processes underlying voluntary innervation take place are unaffected any more than in aphasia a similar conclusion could be drawn from the fact that the patient may remain able to utter certain words and phrases with distinctness, in both cases the power of reproducing large numbers of coördinated movements being invariably lost.

<sup>1</sup> Med. Chir. Trans., vol. lxx.

<sup>2</sup> Dr. Gowers calls especial attention to the fact that all these forms of disordered movement, though usually preceded by hemiplegia, may occur as independent affections.

(2.) In the vast majority of cases the movements are unilateral, but occasionally, as in chorea, they are bilateral.

(3.) As a rule the movements succeed hemiplegic attacks, but in some cases<sup>1</sup> they come on gradually without preceding paralysis.

(4.) The subjects of the disordered movements are sometimes epileptic, and at the time of the seizures the muscles which are the seat of the movements are first and preëminently attacked; furthermore, in one of Dr. Gowers's cases the position given to the limb at the outset of the seizure was that which it was apt to assume under the influence of the semitonic spasms; again, this same position is sometimes assumed as an "associated movement," whenever the opposite healthy limb is moved.

(5.) Voluntary innervation, even if finally relatively successful in its aim, has usually at first the effect of increasing any existing spasmodic action of the muscles.

(6.) The spasms which are especially the subject of this paper, whether mobile or spastic, affect by preference the smaller, more rapidly acting muscles of the limb (in the upper extremity, the interossei), while the fixed spasms constituting the so-called "late rigidity" of hemiplegia affect especially the larger, more slowly acting muscles (long flexors). The slow, mobile spasm (athetosis) is usually confined to the extremities, but Charcot reports a case where some of the muscles of the neck and face were affected as well,<sup>2</sup> and in one of Dr. Gowers's cases (No. 11) something similar was seen.

(7.) Sensibility of the skin is usually stated to be impaired in athetosis; according to Dr. Gowers this is not always the case.

(8.) Rosenbach<sup>3</sup> describes a case of locomotor ataxia such as others also have observed, where involuntary movements were to be seen affecting the fingers and toes. At the autopsy a lesion of the posterior lower and outer part of the nucleus lenticularis with the adjacent tissues was found, as well as the usual spinal lesions. As Rosenbach points out, the cerebral lesion was unilateral, while the muscular movements were bilateral, and the two may very likely not have been associated during life, but the observation is nevertheless of physiological interest in connection with the general subject.

(9.) As regards prognosis, it was mentioned in a former report that Dr. Weir Mitchell had seen slight improvement (in "post-paralytic chorea") follow persistent gymnastic training, a conclusion which the reporter can confirm, and Dr. Gowers has seen one case of the slow, mobile form get well apparently under the influence of the constant galvanic current.

As regards the pathology of these interesting affections, lesions have

<sup>1</sup> Gowers, Gairdner (*Lancet*, June 9, 1877), and others.

<sup>2</sup> *Léçons*, etc., 4<sup>e</sup> fascic.

<sup>3</sup> *Virchow's Archiv*, lxxviii.

been found by Charcot in the region known as that of Türck, the posterior part of the inner capsule, nucleus lenticularis, and optic thalamus (in cases where anæsthesia was also present, which he considers as constituting the typical form of the post-paralytic choreic affection); by Gowers in the middle region of the optic thalamus; by Mitchell in the corpus striatum; by Bernhardt in the tissues outside the corpus striatum; while in cases reported by Gowers and by Bastian the symptoms pointed to disease in the pons and in the crus cerebri, respectively.

Dr. Gowers calls attention to the fact that the lesion causing the hemiplegia which so often precedes these spasms seems to be much more frequently softening than hæmorrhage. Dr. Hughlings Jackson long ago suggested that the disorderly movements of chorea might be due to the irregular, excessive discharges taking place in the ganglionic matter surrounding some focus or foci of disease, and included within the area of increased blood supply, making the nutritive changes in them abnormally active; and Dr. Gowers, finding that in most of his cases the initial gross lesion, where such appeared to be present, was rather "softening" than hæmorrhage, was led to adopt a similar view, the partial (irritative) changes of nutrition in softening probably involving the tissues for a relatively great distance from the region of greatest change. Whatever the nature of these nutritive changes to which this supposed increase in irritability is due, they cannot be such as tend eventually to destroy the vitality of the ganglion cells concerned, since these movements usually persist with undiminished intensity for years, the affected muscles often becoming hypertrophied. It is likely that the explanation is partly to be sought for in another direction, namely, in the important principle so often dwelt upon by Dr. Hughlings Jackson, that the loss of one faculty involves the over-action of another which it had previously regulated and held in check. It is under this principle that many of the phenomena of hysteria, delirium, insanity, etc., are best explained, and it may be that the terse description of choreic movements as "insanity of the muscles" contains more scientific truth than at first appears. Following out this principle, Dr. Jackson has been led to believe that the late rigidity of hemiplegia and some forms of these involuntary movements are due to over-action of the cerebellum.

The dependence of the nervous centres for their maintenance in a state of healthy activity not only on excitations originating in each other, but upon those conducted to them from without, is also to be taken into account, especially in the explanation of such cases as that of Rosenbach.

If the application of this principle is correct, we should look for the cause of the symptoms to the disordered action not only, though perhaps primarily, of the gray matter partially involved in the particular



lesion, but also of all the other ganglionic centres which in health would take part with or without consciousness in the voluntary or reflex production of such movements.

*Sunstroke.* — In a leading article of the *Philadelphia Medical Times*, August 5, 1876, Dr. H. C. Wood gives a short sketch of his clinical observations during a portion of the period of the Centennial Exhibition. He was able to verify his previous conclusion "that there are two distinct classes of cases that have been confounded under the name of sunstroke." The characteristic feature of one class is the collapsed state of the patient; of the other, that the bodily temperature is excessively high, the latter being much the more common form. In illustration he instances the cases of two men, workmen within the buildings, both of whom fell over unconscious and were brought to the hospital in the course of fifteen or twenty minutes. Both were in a state of muttering delirium, with very rapid and feeble pulse, but in the case of one of them the breath was very cold, the skin very wet, and the temperature of the body as taken in the mouth only  $95\frac{1}{4}^{\circ}$  F.; while in that of the other the skin was dry, and the buccal temperature still as high as  $107\frac{1}{2}^{\circ}$  F. after the patient had been for some minutes in the ice bath, presumably, therefore,  $108^{\circ}$  or more at first. It would not do, then, to adopt a routine treatment of ice baths for every patient, those of the former type needing rather treatment by hot baths, by subcutaneous injection of ten or fifteen minims of the tincture of digitalis, and by diffusible stimulants.

The remarkable action of frequent cold baths in the other form of the disease, as well as in those cases of cholera infantum characterized by high bodily temperature, is strongly dwelt upon. After the cold baths Dr. Wood finds subcutaneous injection of quinine useful in preventing a second rise of temperature.<sup>1</sup>

Volume lxiv. of *Virchow's Archiv* contains an interesting paper by Arndt upon the same subject, giving an account of the autopsies of three soldiers who had died from the effects of the heat during a long parade march near Berlin, in July, 1870.

In the two cases in which the thorax and abdomen were opened the organs were found swollen, their parenchyma pale, but the larger vessels were crowded with dark, fluid blood.

The brain, especially, which has usually been described as congested, was in all three cases found to be very pale and œdematous, and the convolutions compressed from within and flattened. This apparent discrepancy Arndt explains by the supposition that the great fullness of the large vessels had so far misled the observers that they had overlooked the parenchymatous anæmia. He thinks it highly probable

<sup>1</sup> Warburg's tincture, a compound of quinine with a large number of aromatics, deserves to be remembered in this connection. See *Practitioner* for February, 1877. — R.M.P.

(unfortunately no microscopic examinations were made) that the ganglion cells of the brain, as well as the tissues of the other organs, were in a state of "cloudy swelling," the first stage of inflammation, and that to this the cerebral symptoms are regularly due, the greatly altered state of the blood acting as an additional cause, and both being traceable to the direct influence of the great heat.<sup>1</sup>

This would give a pathological basis for the severe symptoms of nervous prostration and irritability from which the subjects of sunstroke often remain sufferers through life. The same he thinks may occur in the febrile diseases characterized by great bodily heat.<sup>2</sup>

Dr. Koester,<sup>3</sup> in an autopsy upon a soldier who had died of sunstroke, found excessive swelling of the cervical sympathetic, with small hæmorrhages into its ganglia, and a similar condition about the vagi and the phrenics. He calls attention to the facts, because these parts are generally overlooked at post-mortem examinations, although disease of them must give rise to disturbances of the circulation and respiration.

*Concussion of the Brain.*— In a former report reference was made to the suggestion of Fischer, that in concussion of the brain a paralysis of the cerebral vessels takes place, such as is believed to affect the abdominal vessels in case of "shock," and that to this the symptoms are due. More recently Witkowsky<sup>4</sup> has shown experimentally that in rabbits this is not invariably the case, and, furthermore, that in the vast majority of cases the dilatation of the vessels is preceded by a contraction, during which the symptoms may come on. He points out that with frogs the symptoms of commotio cerebri may be excited by tickling the floor of the fourth ventricle; also, that they may be made to occur after the heart has been cut out, and the circulation thereby put an end to, or where the blood has been replaced by a solution of salt.

For these and similar reasons he believes that in concussion of the brain not only the vaso-motor centres, but at the same time the respiratory centres, the reflex centres, and those in which the processes underlying consciousness take place, must be directly paralyzed.

*Nerve-Stretching in Sciatica.*— The plan of stretching violently nerve trunks which are the seat of neuralgia, first adopted by Professor Nussbaum, of Munich, has recently been employed with at least temporary success by some of the Edinburgh surgeons in a number of cases, of which two are reported by Mr. Chiene in the *Practitioner* for June,

<sup>1</sup> It has been shown experimentally that great heat is able to cause "cloudy swelling" of the abdominal organs. See Trans. of Lond. Path. Soc., vol. xxiv., article by Dr. Wickham Legg. — REF.

<sup>2</sup> The brains of typhoid patients have been examined by several observers, and signs of degeneration or inflammation found in the ganglion cells, though never exactly cloudy swelling. See a paper in Virchow's Archiv, vol. lxi., by Popoff. Herzog Carl (Ibid., vol. lxi.) has failed to verify his observations. — REF.

<sup>3</sup> Berliner klinische Wochenschrift, August 23, 1875.

<sup>4</sup> Virchow's Archiv, lxi., p. 498.

1877. "The nerve is exposed by incision and hooked up, in the case of the sciatic, on the finger of the operator. It is forcibly pulled, first proximally and then distally; the limb of the patient is then lifted from the table by the sciatic nerve."

The wounds are treated antiseptically, and are painless. The nerve suffers no injury whatever. The patients had been suffering for months before the operation, but the pain was immediately relieved, and they were discharged essentially well at the end of three and four weeks, respectively, after it. There was no reason to believe that the nerves were bound down by any adhesions which were broken by the stretching, and the operation must be looked upon as a means of exerting a profound impression upon the affected portion of the nervous centres. It is not improbable that section of the nerves acts in a similar manner, and no better explanation than this has been offered of the action of section of the supra-orbital nerve for spasm of the orbicularis oculi, a mode of treatment which is frequently effectual in cases where the rest of the facial muscles of the same side are not involved.

Drs. Hall Curtis and C. E. Stedman, of the Boston City Hospital, have recently reported in the *JOURNAL* a number of cases of sciatica in which the treatment by the deep injection of chloroform, first introduced by Bartholow in a case of infra-orbital neuralgia, was used with marked success. Here the counter-irritant action may be due in part to pressure on the nerve by the inflamed and swollen tissues.

P. Vogt<sup>1</sup> has endeavored to determine experimentally the physiological and anatomical processes which are concerned in this nerve-stretching, and finds that the excitability of the nerve is demonstrably diminished, but that this is apparently due, not to the action of the pulling upon the nervous centres, but to a direct modification of the anatomical relations of the nerve fibres and blood-vessels within the nerve itself.

He gives also a summary of the cases in which the operation has hitherto been done (cases of neuralgia, clonic spasm, certain forms of epilepsy, traumatic tetanus), and lays down practical rules for its performance. An article by Professor Westphal<sup>2</sup> contains some physiological statements of importance in connection with this interesting subject.

*The Relation of Pain to Weather.* — Dr. S. Weir Mitchell,<sup>3</sup> with the efficient aid of an intelligent patient, a sufferer from intractable neuralgia following amputation of the leg, has recently made a model attempt to give definite shape to our vague knowledge with regard to this subject by studying the periodicity of the attacks of pain in the light of all the accurate information which could be gathered as to the atmospheric conditions prevalent locally and in the country at large.

<sup>1</sup> Die Nervendehnung als Operation in der chirurgischen Praxis. Leipzig. 1877.

<sup>2</sup> Archiv für Psych. und Nervenkrank., vii. 3.

<sup>3</sup> American Journal of the Medical Sciences, April, 1877.

Their results may be summed up as follows: The outbursts of pain were associated, as a rule, with diminution of the barometric pressure, although it was difficult to estimate the precise value of this factor in inducing the result.

Increased humidity of the air seemed to have more or less effect in exciting them.

The sensitiveness of the tissues to these influences was greatly increased by conditions impairing their general vitality.

Apparently no one of these influences was able by itself to bring on an attack; and the occurrence of the attacks in connection with the coming of a storm points either to a concurrent action of all of them or else to the presence of some other factor as yet undiscovered.

Efforts were made to record carefully the electric and magnetic conditions of the air, but failed from lack of suitable instruments. Captain Catlin did, however, notice that the pain was apt to be especially severe at times when the northern lights were brilliant.

With regard to the relation in space of these pain-producing influences to the storm centre, the point of greatest barometric depression, they are found occupying a zone about one hundred and fifty miles in width, lying in front of and embracing the rain area, which itself has a radius of five hundred and fifty to six hundred miles. Within this outer belt, which he calls the neuralgic margin of the storm, the sufferer may see nothing of the gross signs of bad weather. "It is somewhat interesting to figure to one's self thus: an area of rain girdled by a neuralgic belt one hundred and fifty miles wide, within which, as it sweeps along in advance of the storm, prevail in the hurt and maimed limbs of men, and in tender nerves and rheumatic joints, renewed torments, called into existence by the stir and perturbation of the elements."

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#### ZIEMSEN'S CYCLOPÆDIA.<sup>1</sup>

THE volume before us is divided into two parts: the first, by Bartels, treats of disease of the kidney proper; the second, by Ebstein, is devoted to affections of the renal pelvis, the ureter, and the neighboring tissues, and to some diseases, such as cancer, tubercle, and parasites, that attack the gland itself; anomalies and malformations are also considered. The merit is not equally distributed throughout the book; but as a whole it is very valuable, and we think there will be many who will regret that the volume cannot be obtained alone. Professor Bartels begins with a thorough discussion of the general symptoms of kidney diseases, the way to detect them, their significance, and especially the physiology of their production. He lays great stress on the importance of determining the whole quantity of urine passed in twenty-four

<sup>1</sup> *The Cyclopaedia of the Practice of Medicine.* Edited by H. VON ZIEMSEN. Vol. XV. *Kidney Diseases.* New York: William Wood & Co. 1877.

hours for several days, but frankly admits the difficulty of doing so even in well-regulated hospitals. He admits also that the quantity is liable to vary for several reasons, but it appears to us that he hardly gives due weight to this variation depending, as it must, not only on the quantity of fluid taken but also on the state of other organs than the kidneys, the temperature, the amount of exercise, and sometimes even the mental condition of the patient. Indeed, he himself furnishes us with an instance that shows both the uncertainty of these examinations and a looseness of reasoning into which he is occasionally betrayed. He refers to the case of a woman who, for a fistula of the ureter, suffered the extirpation of a healthy kidney, in the hands of the late Professor Simon. Twelve days after the operation she passed thirteen hundred cubic centimetres of urine in twenty-four hours, and for the six weeks she was under observation, though passing less than the average quantity, she appeared to be well. The translator very justly remarks, in a foot-note, that he would like to know how the remaining kidney was a year or two later.

The discussion of the production of albuminuria is very interesting. The author shows that an increase of blood pressure may cause the discharge of albumen from a perfectly healthy kidney, and that in other cases there is some change in the walls of the renal blood-vessels. Of course these two conditions can coexist. The inquiry into the nature of uræmia, though well worth reading, is less definitely settled. The theory that the symptoms are due to the formation of carbonate of ammonia in the blood is shown to be untenable, and certain clinical observations prove that an accumulation of urea is not a necessary factor; but beyond these negative conclusions apparently little can be asserted. Bartels's conclusion, "that the symptoms are all caused by some disorder of the urinary secretion, and that the title of uræmia is rightly attached to them," is quite as much as any one is justified in assuming.

Passing over the other general discussions we come to the body of Bartels's work, the diffuse diseases of the kidneys. This is prefaced by the inevitable historical introduction, which in this case we are less than usually disposed to skip, as it gives a good idea of the nomenclature of different authors, and shows the extreme vagueness with which the term Bright's disease is applied. After this the author gives his own classification of the diseases which have more or less generally been grouped together as Bright's. It is as follows:—

- (1.) The active and the passive hyperæmia.
- (2.) The renal affection of cholera.
- (3.) The acute and the chronic inflammation of the parenchyma.
- (4.) The interstitial inflammation producing the contracted kidney.
- (5.) Amyloid degeneration.

The active hyperæmia of our author is simply the condition produced by certain renal irritants, of which cantharides is the most notorious, and is consequently of little interest. The passive hyperæmia is that caused by venous congestion, and can of course arise under various circumstances, but it is important as the form of renal disease depending on valvular disease of the heart. The choleraic affection of the kidney being practically a part of that disease appears out of place in a work of this nature. It should come under the head of cholera, not of diseases of the kidney.

Acute parenchymatous nephritis is strictly distinguished from the chronic. The latter is a continuation of the former only under exceptional circumstances. Bartels divides the causes of the acute disease into two classes: "The first category embraces all those causes where certain specific noxious substances are carried by the blood current to the kidneys, — substances which irritate these organs, and eventually cause them to become inflamed." "The second category comprises those causes which act upon the vessels of the kidneys and upon the circulation of blood through them in such a manner as to favor inflammatory changes in these organs; the causes here referred to act chiefly in a mechanical manner." We must confess to some doubt as to whether these classes can be kept separate; the matter is extremely obscure. Scarlet fever may be taken as the type of the causes of the first class. The author insists that it does not act mechanically, because albuminuria does not appear until after the height of the disease, while when it accompanies affections of large tracts of skin like eczema or psoriasis, it appears at their worst. Among causes of the second class the aetiological scapegoat (as the author properly calls it), "catching cold," is brought forward. Cases are cited of persons who, having carelessly exposed themselves when heated, have suffered from renal inflammation, but though no one will deny this fact we must insist that it is not proved that the kidneys were perfectly sound before the exposure. Why is it, we are frequently asked, that a sudden exposure will occasion in one person inflammation of the throat, in another, of the lungs, in a third, of the bowels, and in a fourth, of the kidneys? The probable explanation is that the "collateral blood fluxion," as Bartels calls it, or the cause whatever it be, attacks the part that from previous trouble is most liable to inflammation. That this is true of the throat and lungs is of every-day experience, and it is at least plausible that when the kidney is the point attacked it has either had some previous affection or, perhaps from some irritating substance in the urine, oxalate of lime for instance, is in a state that can easily be converted to one of inflammation. But this our author overlooks.

Just as the chronic parenchymatous inflammation is shown not to be a continuation of the acute form, so the contracted cirrhotic kidney is shown not to be the result of the former affection. They are three distinct diseases, and, though with regret, we must give up the simplicity of the three stages of Bright's disease. We are very glad to observe that under both chronic parenchymatous inflammation and renal cirrhosis Bartels combats the wide-spread idea that kidney disease is the result of intemperance. He states that in all his experience he has only three times seen contracted kidneys in habitual drunkards. Bartels concludes his share in this volume with a very good account of amyloid disease of the kidneys, which he declares to be "invariably the local manifestation of a general constitutional disease." He shows that usually the spleen is also involved; that frequently considerable portions of the kidneys are healthy while parts of them are thus diseased; and moreover that the arteries of the kidneys are often thus affected in some of the other forms of renal disease. We must confess we are somewhat surprised, in view of the statement in quotation marks, that the author should recommend the sacrifice of a diseased limb as soon as renal trouble is apparent, and still more so that



he should be willing, as he states he is, to submit to it in his own person. We conclude from views expressed in different parts of these chapters that Professor Bartels believes that most kidney diseases are either secondary to other troubles or, like the amyloid degeneration, local signs of general mischief. If this important question had been discussed at length by itself it would have given additional value to this excellent monograph.

The second part of the volume, by Ebstein, is devoted to subjects of less interest. Amyloid degeneration is taken up again; we cannot guess why. Certainly we find nothing in the article to atone for the repetition, which is a fault in the unity of the work. The chapters on pyelitis, on inflammation in the tissues around the kidneys, and on nephrolithiasis are very good without offering much that is new. We are annoyed to meet, in both parts of this volume, with occasional commendatory allusions to Simon's severe operations; not that the removal of a kidney is necessarily to be condemned, but that the tendency of his teaching has been to make common what should be very rare. Ebstein recommends in certain cases Simon's examination by the whole hand in the rectum, which has already occasioned several unnecessary deaths. The chapter on movable kidney is an extremely interesting one. A kidney may be freely movable from two quite distinct causes: either it may have originally been provided with a fold of peritoneum constituting a true mesentery, or it may have broken loose from its attachments. The former condition is, of course, not likely to give rise to trouble, and probably is rarely diagnosed, while the second may have very serious results, and under favorable conditions may be recognized. The acquired movable kidney is usually the right one, and occurs most frequently in women of at least middle age. According to Cruveilhier tight lacing is a cause of the displacement, but Ebstein disputes this on the ground that it is found most commonly in the laboring classes.

The discussion of anomalies is chiefly of scientific interest. We are inclined to doubt Ebstein's assertion that when a kidney is "really and entirely absent" the corresponding ureter will be wanting also.

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### DISEASES OF CHILDREN.<sup>1</sup>

It is with pleasure that we announce another edition of this useful book. The fifth edition having appeared in 1874 was duly noticed in the *JOURNAL*, and now that a sixth has appeared comment on our part is almost needless. Attention has been devoted rather to the careful revision of the text than to the addition of new articles. Night Terrors and Epidemic Cerebro-Spinal Meningitis are subjects which have been added. The clinical material in all cases is abundant; each subject is entered into in detail. The names of the authors are indeed a guarantee of the excellence of the work. We can safely recommend it to family practitioners as a book which is fully abreast of the times, and one which cannot fail to prove a valuable help to them in their practice.

<sup>1</sup> *A Practical Treatise on the Diseases of Children.* By J. FORSYTH MEigs, M. D., and WILLIAM PEPPER, A. M., M. D. Sixth edition, revised and enlarged. Philadelphia: Lindsay and Blakiston. 1877. Pp. 982.

HUTCHINSON'S ILLUSTRATIONS OF CLINICAL SURGERY.<sup>1</sup>

THE present fasciculus, although it can hardly lay claim to cover any portion of the domain of clinical surgery, however remote, is nevertheless treated with a care and ability which consoles one who is disappointed at a tendency shown in many of the fasciculi to drift into subjects which might more appropriately be treated by the dermatologist; and yet there are few men who could handle a small and somewhat obscure point with the same nicety, and unfold its obscurities so completely, as Mr. Hutchinson. The subject in question is Xanthelasma Palpebrarum, and is illustrated by two handsome plates. There is also a tabular report of seventy-four cases. The author does not look upon it as a disease, but rather a "pathological consequence of frequently recurring physiological processes." "Thus its presence," he says, "enables us to look backwards and to tell the patient what he has gone through in the past, often with great definiteness." Occurring as it does upon the lids, it may be looked upon as a sequel to the tendency often to become "dark about the eyes," and an indication of the pathological processes which this appearance implies. There is a careful description of the minute anatomy of the affection, and many other points which space does not permit us to call attention to.

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CAMP-CURE.

THE above title is a suggestive one to those who have been struggling on through summer, at the end of a hard year's work, and are enduring, with such resignation as they can summon, the debilitating influences of weather so characteristic of the month of August, and, we might add, of our climate. We remember, on returning to this country from abroad at this season, to have recognized, we can hardly say welcomed, among numerous national characteristics, the moist, warm or "dog-day" weather, to which we had been a stranger for some time. Whether this be a peculiar climatic feature of our summer or not, certain it is that this is a period of the year when even the most vigorous and energetic constitutions begin to feel the "lowering of tone" which is pointed out by a distinguished Philadelphia physician in a recent magazine article, in which the "camp-cure" treatment is attractively sketched. The writer seeks for a clew to this condition of the system in the wide-spread malarial influences at work in many portions of the country. He says: "It would be well worth some inquiry to learn if in countries totally free from ague-poison, the breaking up of winter weather be thus efficient to weaken." This portion of the country can hardly be accused, however, of any such influence, and yet such sensations and conditions as are described are as characteristic here as elsewhere. A more plausible explanation may be sought for, at least in New England, in the marked changes of the season. The bracing air of autumn and winter which enables us to withstand

<sup>1</sup> *Illustrations of Clinical Surgery.* Consisting of Plates, Photographs, etc. By JONATHAN HUTCHINSON, F. R. C. S. Fasciculus VII. Philadelphia: Lindsay and Blakiston. 1877.

those vagaries which Mark Twain has so graphically sketched, is poor preparation for the warm-bath-like atmosphere prevailing in the month of August. The imperfect sanitary conditions of many of our cities renders them unduly susceptible to the vitiating influences of weather of this character, and is not without its injurious effects upon the most stalwart citizens. The "camp-cure" can hardly be said to have any element of novelty in it, for late years have brought with them a realizing sense of the necessity for a "change" at this season. The sacred right of vacation is now, we believe, universally conceded; and, in this city at least, the humblest clerk claims his week or fortnight for rest at the mountains or in camp at the seaside. The fact, if it be one, that the medical profession is proverbially disinclined to take the advice which it urges so fervently upon others, would, we fear, be illustrated in this instance, were it not that many physicians are deserted by their patients at this time of the year. As it is, the imitators of Sir Henry Holland are fortunately more numerous than they were, and we rarely hear of an unbroken series of years' service without a single day of rest, a not infrequent boast at one time of some of our older practitioners. This separation of patient and physician is not alluded to in the "camp-cure," but is an element which doubtless should be taken into account, and is not without a certain mutual benefit, which we commend to the attention of some of our over-conscientious brethren.

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#### MEDICAL NOTES.

— We would call attention to the advertisement in another column of the Surgical Observations of the late Dr. J. Mason Warren. This book had hardly left the printer's hands when Dr. Warren's death prevented any arrangements for placing it at the disposal of the profession. The work is eminently a practical one, containing the life-long experience of a hospital surgeon and active practitioner. Carefully-selected cases illustrate the various subjects treated, covering nearly the whole domain of surgery. There are numerous matters of historical interest, such as the discovery of anæsthesia, in the circumstance connected with which Dr. Warren and his father bore the most prominent parts of the surgeons of that day. The book is valuable as a work of reference.

— We are fully authorized to deny the statement made in the columns of the daily press that Dr. Harris, the medical examiner, will furnish "an official report of the cases investigated by him to the newspapers for publication."

— *The Louisville Medical News* makes the following quotation from Dr. J. Mason Warren's Surgical Observations on the introduction of ether at the Massachusetts General Hospital: "In the autumn of 1846, Dr. W. T. G. Morton, a dentist in Boston, a person of great ingenuity, patience, and pertinacity of purpose, called on me several times to show some of his inventions. At that time I introduced him to Dr. John C. Warren. Shortly after this, in October, I learned from Dr. Warren that Dr. Morton had visited him and informed him that he was in possession of, or had discovered, a means of preventing pain, which he had proved in dental operations, and wished Dr. War-

ren to give him an opportunity of trying it in a surgical operation. After some questions on the subject, in regard to its action and the safety of it, Dr. Warren promised that he would do so. On the Tuesday following, October 13th, after the surgical visit at the hospital, a patient was brought into the amphitheatre for operation. This being the first opportunity which had occurred since Dr. Warren's promise to Dr. Morton, Dr. Warren said to us: 'I now remember that I have made a promise to Dr. Morton to give him an opportunity to try a new remedy for preventing pain in surgical operations,' and asked the patient if he should like to have the operation done without suffering. He naturally answered in the affirmative. The operation was therefore deferred until Friday, October 16th, when the ether was administered by Dr. Morton with his apparatus, and the operation performed by Dr. Warren. It consisted in the removal of a vascular tumor of the neck, which occupied five minutes. During a part of the time the patient showed some marks of sensibility, but subsequently said that he had no pain, although he was aware that the operation was proceeding. On the following day a woman requiring the removal of an adipose tumor from the arm was rendered insensible by ether, given by Dr. Morton, and Dr. Warren requested Dr. Hayward, who was present, to perform the operation. This was successful, the ether being continued through the whole operation, which was a short one, and the patient being entirely insensible."

— *The Louisville Medical News*, speaking of the disinclination of Americans to indulge in active exercise, says: Base-ball has utterly failed to bring out the American muscle. There is a glimmer of hope that the health-lift, which is the lazy man's gymnasium, may do something toward it, but we fear it will end at last in massage being the only exercise the American can take. We believe he can at least lie still and be rubbed.

— The Paris correspondent of *The Lancet* of July 28, 1877, records the opening of an abscess of the brain with the knife, by Drs. Tillaux and Proust. The patient was convalescent from an attack of illness, when one day he was taken with right hemiplegia and aphasia. He had necrosis of the parietal. Drs. Proust and Tillaux, after considering the particulars of the symptoms, thought that the phenomena were due to pressure exerted by the necrosed bone, or even to the existence of an abscess in the dura mater or in the cerebral substance. An incision was made, two splinters were removed, the dura mater was laid bare, and found thickened and covered with fungous growths. It was then decided to wait a few days to see whether compression had caused the symptoms; but the aphasia and paralysis persisted, and Dr. Tillaux, in order to avoid the longitudinal sinus, widened the opening made in the skull, and having selected a suitable spot, cut the dura mater, and thrust the bistoury into the cerebral substance. A jet of matter came away, and a grooved sound was used with the result of obtaining a teaspoonful of matter. A thread was then put in. Immediately after the operation the patient recovered his speech, and declared he felt much better. Paralysis has not disappeared. There was evidently some encephalitis round the abscess, but the patient's life was saved.

— *The British Medical Journal* states that according to official report the damage done by wolves in Russia in forty-five governments amounts to seven

and a half millions of roubles annually. Even this sum is not supposed to be sufficiently large. The number of wolves is estimated at 200,000. Each requires for its annual maintenance about twenty-three hundred weight of flesh. The whole army, therefore, must consume every year about 230,000 tons, 500,000 geese and 100,000 dogs being included. There were also 161 human beings destroyed. Altogether, the amount of damage done may be valued at not less than 15,000,000 of roubles, or £2,000,000. A good many wolves are killed every year, but hunting has declined since the emancipation of the serfs, by which the wolves have profited. Of late, it has been proposed to get rid of them by means of strychnine, but it remains to be seen whether the plan will succeed.

— W. F. Parsons, M. D., of Enfield, reports in the Proceedings of the Connecticut Medical Society for 1877, the case of a child three years old who was bitten by a dog in May, 1876, and died of hydrophobia May 13, 1877, — a year after the occurrence of the primary lesion.

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### HOSPITAL NURSES IN LONDON.

MESSRS. EDITORS, — Although the theme is not a new one, I take the liberty of calling the attention of your readers to a few points in the system of nursing at the London hospitals, which, like almost all the institutions of this intelligent and order-loving English people, deserves careful study.

Naturally it is to the large hospitals having training-schools attached to them, especially St. Thomas's, Kings' College, and now St. Bartholomew's, that one turns to see their system at its fullest development; but it is less to the methods of teaching in the schools themselves than to the nature of the ward work that I wish particularly to call attention.

With regard to the classes of society from which the pupils at these training-schools are drawn, two of the schools, St. Thomas's and Kings' College, receive, besides the young women ("probationers") who need only to be respectable and capable, and who are destined to become under-nurses (technically "nurses") alone, a certain number of so-called "lady probationers," women often of first-rate education and social position, who pay for their instruction, but who, after passing regularly like the others through the two lower grades, become qualified to be head-nurses or "sisters" of the wards.

It seems doubtful whether, without drawing them from the ranks of the lady probationers, it would not be easy to supply equally good head-nurses from among the other pupils, and, moreover, the caste separation sometimes causes a little ill feeling; but the fact that the arrangement exists is interesting in two ways: first, because it furnishes a good illustration of the feeling prevalent in England, which has certainly something to recommend it, that to learn to fill even a subordinate position well, though without the chance of rising higher, is an aim with which one may honorably rest content; secondly, because it helps to show, if further demonstration were needful, that it is not impossible for women to retain thorough refinement while performing kinds of work which with us have usually been done by men only. For

in the London hospitals, the face of a male ward-tender is comparatively rarely seen in the wards, one part of the work allotted to him in some of our hospitals being assumed by the "dressers," who value their opportunities for learning in this way so much that they are willing to pay for them, and another part devolving on the nurses; and I have it upon the authority of a lady familiar with the working of the best hospitals both here and in America, that this arrangement is much the pleasanter of the two for the nurses; the ward-tenders, who are practically possessed of a vast amount of power for annoyance, being, in fact, more apt to be insolent and rude than the patients, and being often hard to get at when wanted.

Again, the nurse is able to do thoroughly what a busy ward-tender, with his multiform duties, is apt to forget or neglect. Thus, in some of the best hospitals here, every patient, male or female, if confined to bed, though only for a few days, is examined twice daily by the nurses for bed-sores, and in consequence of this it is a thing unknown, except in certain sorts of cases, for a bed-sore to develop after a patient's entrance.

In cases of Bright's disease and others, the daily quantity of urine passed by the male patients is measured by the nurse and reported by her to the physician, as are also the details as to the character of the stools. The male patients are washed by the nurses to the waist, and stripped by them at the visit for examination of the chest. Patients in urgent need of mustard poultices, abdominal fomentations, or the bed-pan are not left to wait the coming of a ward-tender, who may be engaged in other work or absent at a distant corner of buildings covering an acre or two of ground, nor thrown on the services of a friendly fellow-patient, but are attended to by the nurse *secundum artem* and at once.

As a further beneficent result of this state of things there is every reason to believe that so far from indecent behavior being made more common, prudery, which in the end leads as often to indecency as to greater decency, is discouraged. Possibly this might not be the case in a country where the relations between the different classes "in the way of business" were less formal and strict than they are in England. Anything like familiarity between assistants, patients, and nurses is discountenanced, and in one hospital it is even out of rule for a medical officer to address himself at all to any nurse except the sister of the ward. At the same time both sister and nurse and often under-nurse or probationer are usually expected to accompany the physician on his visits, holding themselves ready to give information, and putting themselves in a position to become imbued with his spirit, and to learn his views of the patients' needs. Breaches of discipline are severely punished, are rare, and in general nothing could be more respectable than the faces and bearing of the nurses both high and low. The mode of teaching in the training-schools here is much the same as in our own, except in certain details.

The English would unquestionably find many things worth copying in our systems of nursing, perhaps even in respect to the points especially referred to in this letter, but it seemed worth while to note down what struck me as praiseworthy for the consideration of those better able to judge in the matter than myself.



## MINERAL WATERS.

MESSRS. EDITORS, — Having for the past eighteen months used the Sheboygan mineral water in general practice with remarkable success, the writer considers it a duty which he owes to the medical profession of this country, as a slight return for the valuable information he has received from the experience of other physicians as communicated through the pages of the JOURNAL, to report what he has been able, by his own observation, to gather of its therapeutical value, and to recommend it to farther and more scientific investigation.

The analysis by Professor Chandler, of New York, shows this water to be closely allied to the waters of Kissingen and Kreutznach of Germany, containing each and every mineral found in the waters of Kreutznach, and, with the exception of chloride of sodium, in nearly the same proportions. As compared with Kissingen it contains the same amount of chloride of sodium, as well as all of the other salts, nitrate of soda only excepted. In addition to the minerals found in Kissingen and Kreutznach, Sheboygan shows traces of sulphate of baryta and baborate of soda, with a small amount of bicarbonate of manganese.

Guided by the well-known hand-book of Balneo-Therapy, edited by Dr. H. Helfft, Berlin, 1867, the writer has prescribed this mineral water for nearly all the diseases for which Dr. Helfft has recommended Kissingen or Kreutznach, and his success has thus far been highly encouraging, especially in the treatment of scrophulosis, arthritis, chronic rheumatism, chronic catarrhs of the bronchial tubes and the alimentary organs, hyperæmia of the liver and kidneys, hemorrhoids, anomalies of the menstrual functions, chlorosis, and many chronic diseases of the skin, joints, and bones.

This mineral water flows from an artesian well bored in one of the parks of the city of Sheboygan, Wisconsin, in 1875, to the depth of 1475 feet, 1383 feet being through solid rock. At a depth of 285 feet a fissure was found in the rock of three or four feet in width, below which no seam was discovered. At a depth of 1263 feet a white sandstone was struck, and at 1350 feet a flow of water was obtained; at 1475 feet four inches below the surface a hard rock resembling granite was found, and after several attempts to drill without success work was suspended. The well having been carefully tubed the water flows bright, clear, and sparkling, free from any organic matter or unpleasant odor, about two hundred gallons per minute at a pressure of forty-two and a half pounds to the square inch, with a uniform temperature of 59° Fahr.

The water is rich in saline materials, containing lithia, bromine, iodine, with chalybeates and carbonic acid gas enough to make it at once a most valuable stimulating alterative and tonic. In taste it is somewhat salty and slightly bitter, but not at all nauseating; drinkers soon become accustomed to it, and some even prefer it to pure well-water.

After careful trial by the profession we bespeak for it high rank among the mineral waters of the world.

LOUIS BOOTH, M. D.

SHEBOYGAN, May, 1877.

## COMPARATIVE MORTALITY-RATES FOR THE WEEK ENDING AUGUST 18, 1877.

	Estimated Population, July 1, 1877.	Total Mortality for the Week.	Annual Death-Rate per 1000 for the Week.	Death-Rate for the Year 1876.
New York	1,077,228	533	25.73	27.46
Philadelphia	850,856	340	20.78	22.88
Brooklyn	527,830	279	27.49	24.31
Chicago	420,000	182	22.53	20.41
Boston	363,940	196	28.00	23.39
Providence	103,000	34	17.16	18.34
Worcester	52,977	25	24.54	22.00
Lowell	53,678	23	22.28	22.21
Cambridge	51,572	32	31.49	20.54
Fall River	50,372	27	27.87	22.04
Lawrence	37,626	23	31.79	23.32
Lynn	34,524	15	22.59	21.37
Springfield	32,976	6	9.46	19.69
Salem	26,739	10	19.45	23.57

OBITUARY. — George Lewis Collins was born at Hopkinton, R. I., December 31, 1820, of Quaker parentage, his ancestors having emigrated from England to this country in 1635. He attended the district school in the town in which he was born, and afterwards graduated in 1842 from the Friends' School in Providence. He studied medicine under Dr. Henry W. Rivers, and obtained his diploma in 1846 from the University Medical College of New York. He commenced the practice of his profession in Providence, and by his untiring industry and devotion to his professional duties it soon grew to be large and lucrative. In his earlier years he gave much attention to surgery, but later in life he gradually dropped this specialty and evinced a preference for general practice. At the time of his death he ranked among the first physicians of Rhode Island, and was held in high respect both in and out of the profession for his cool and correct judgment, his skill in diagnosis, and his success in the treatment of disease. He was a close clinical observer, and papers recording the results of his observations have appeared at various times in the pages of the JOURNAL. During the course of his long professional career he held many offices of honor and of trust, among which the following may be mentioned: city physician for the city of Providence, physician to the State Reform School, consulting physician to the Butler Insane Asylum, attending physician to the Rhode Island Hospital, president of the Providence Medical Association, of the Rhode Island Medical Society, and of the Franklin Philosophical Society, trustee of Brown University, member of the American Medical Association, and delegate to the International Medical Congress. Throughout his life he retained the faith of his ancestors, and at the time of his decease was a member of the Society of Friends. His death, which occurred August 21, 1877, was caused by an attack of cerebral hæmorrhage, which terminated fatally after twenty-eight hours of unconsciousness. His loss is deeply felt by the profession and by the community in which he labored faithfully for so many years. V. O. H.

THE Department of Health expects to present the following papers in sectional session at the Saratoga meeting of the Social Science Association, on the 6th and 7th of September. A cordial invitation to be present is extended to all persons. Annual Report by the secretary of the department, D. F. Lincoln, M. D. Is the Intellectual World growing Near-Sighted? By E. G. Loring, M. D., of New York. Ventilation and Warming of Schools. By F. Winsor, M. D. Same subject. By A. C. Martin, Esq. Same subject. By F. Tudor, Esq. Injury to the Health of Girls from Imperfect Early Training. By Mrs. A. C. Martin, of Boston. School Desks and Seats. By A. H. Nichols, M. D. The Half-Time System in Education. By D. F. Lincoln, M. D. Health and Study, a debate in which Dr. Mary Putnam-Jacobi and others are expected to take part.